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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/073,268

02/13/2002

Ken Hanashi

2635-96

6814

23117

7590

11/30/2004

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EXAMINER

MACCHIAROLO, PETER J

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,268

Applicant(s)

HANASHI ET AL.

Examiner

Peter J Macchiarolo

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The reply filed on 09/23/2004 consists of changes to the specification and to the claims, and further, the reply consists of remarks related to the prior rejection of claims in the previous Office Action. The above have been entered and considered. However, pending claims 1-7, and 14-20 are not allowable as explained below.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

3. Claim 2 recites, "if an interval...is d" which does not positively recite the limitation of the wear resisting member being in the circle. If there is no interval d then this claim is invalid. For the purpose of examination, the Examiner reads, "an interval...is d." Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 5-7, 14, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyashita et al (USPN 6724133; "Miyashita").**

5. In regards to claim 1, Miyashita shows in figures 7(a) and 7(b), a metal housing (5); a porcelain insulator (3) installed in said metal housing; a center electrode (2n) retained within said porcelain insulator, said center electrode having a length and a tip portion projecting from a tip of said porcelain insulator; a shoulder formed on a side wall of said center electrode to define a large-diameter portion and a small-diameter portion of said center electrode, said shoulder tapering off to the tip portion of said center electrode and having a boundary leading to the large-diameter portion located inside said porcelain insulator, a first ground electrode (104) being installed on said metal housing which has an end portion opposed to the tip portion of said center electrode to define a first spark gap ($g\alpha$) between; a noble metal chip (105) being disposed on the tip portion of the center electrode which faces the first ground electrode; a second ground electrode (4) installed on said metal housing which has an end arranged outside the tip of said porcelain insulator and opposed over the tip of said porcelain insulator to a portion of the side wall of said center electrode to define a second spark gap ($g\beta$), and a wear resisting member (42) provided on said portion of the side wall of said center electrode, said wear resisting member being different from said noble metal chip disposed on the tip portion of the center electrode.

6. The Examiner notes that the limitations in claim 1, "in which sparks are to be generated to burn away carbon adhered to a surface of the tip of said porcelain insulator, resulting in a decrease in insulation resistance offered by said porcelain insulator;" and, "for offering resistance to wear caused by the sparks generated in the second spark gap," are intended use type limitations. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

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intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

7. Regarding claim 5, Miyashita shows in figure 7a, the wear resisting member has a surface substantially lying flush with a surface of the side wall of said center electrode.

8. Regarding claims 6 and 7, Miyashita shows in figure 7a, the wear resisting is made of a metallic material which is higher in melting point than an Ni alloy (Pt alloy).

9. Regarding claim 14, Miyashita shows in figure 7a, a spark plug comprising: a first spark gap ($g\alpha$) defined between an end of a center electrode (2n) and a first ground electrode (104) disposed in opposition to said end along a longitudinal axis of said center electrode; a second spark gap ($g\beta$), defined radially along a side wall portion of said center electrode and a second ground electrode disposed in opposition to said side wall portion radially outwardly of said center electrode, an insulator (3) circumferentially encompassing a portion of the center electrode and having an end portion of said insulator extending partially into said second spark gap; and a wear resisting material (42) disposed on said side wall portion of said center electrode at said second spark gap.

10. Regarding claims 18-20, the limitations therein have been discussed and rejected *supra*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2-4, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita.

12. Regarding claim 2, Miyashita is silent to the wear resistant member being located within the recited circle having radius $d + 1\text{mm}$.

13. However, one of working skill in spark plug technology will be able to suitably rearranging the wear resistant member to be within the recited circle, and is a matter of obvious design choice. *In re Japikse*, 86 USPQ 70. One would be motivated to such a configuration to allow for more comprehensive wear resisting.

14. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct Miyashita's wear resistant member to be within the recited circle.

15. Regarding claim 3, Miyashita is silent to the wear resistant member having a specific width.

16. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the proper size of a component involves only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Further, one would arrive at this configuration for a

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variety of reasons, including material availability, and operation methods requiring sensitive parameters.

17. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct Miyashita's wear resistant member having a width greater than or equal to 0.5mm.

18. Regarding claim 4, Miyashita is silent to the wear resistant member being provided over an entire circumference of a portion of the side wall of the center electrode.

19. However, this is a known configuration, and one would arrive at this modification on Miyashita's electrode for a variety of reasons, including operation and manufacturing methods requiring sensitive parameters.

20. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct Miyashita's wear resistant member provided over an entire circumference of a portion of the side wall of the center electrode.

21. Regarding claims 15-17, the limitations therein have been discussed and rejected *supra*.

Response to Arguments

22. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

24. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 - 5:00, M-F.

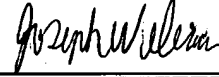
26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 pm



Joseph Williams
Primary Examiner
AU 2879